

Preliminary Amendment  
U.S. Appln. No. 09/534,196

**REMARKS**

Entry and consideration of this Amendment are respectfully requested.

Respectfully submitted,



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**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**The claims are amended as follows:**

2. (Four times amended) A rocket engine [nozzle] as claimed in claim 14, wherein the separation triggering elements comprise:

injection orifices positioned for injecting fluid through a wall of the nozzle body; and at least two independent injection orifices being distributed over the perimeter of the wall of the nozzle body, each of the injection orifices constituting a discrete separation triggering element that induces a distinct zone of jet separation.

3. (Three Times Amended) A rocket engine [nozzle] as claimed in claim 2, wherein the injection orifices are uniformly distributed over the perimeter of the wall of the nozzle body.

4. (Four times amended) A rocket engine [nozzle] as claimed in claim 14, wherein the injection orifices comprise at least two, which are symmetrically positioned around the circumference of said divergent nozzle body.

5. (Three Times Amended) A rocket engine [nozzle] as claimed in claim 3, wherein the injection orifices comprise <sup>three</sup>~~3~~ in number and are arranged at substantially  $120^{\circ}$  to one another over the perimeter of the nozzle body.

6. (Three Times Amended) A rocket engine [nozzle] as claimed in claim 2, wherein said injection cross section is arranged at distance D from the throat which is substantially less than a distance  $D_0$  of a location of spontaneous separation of the flow at sea level.

7. (Four times amended) A rocket engine [nozzle] as claimed in claim 6, said means for simultaneously injecting comprising:

a plurality of injectors situated at different distances from the throat for simultaneously injecting said fluid; and

a distributing device for selectively feeding said injectors at different cross sectional locations to take into account the variation of said distance of spontaneous separation of the flow as a function of altitude.

14. (Twice amended) A rocket engine [nozzle] comprising:

a combustion chamber;

a throat; and

a divergent nozzle body downstream of said throat, said nozzle body having an axis and a control system for controlling jet separation of a flow in the nozzle body, said [flow] <sup>[thrust</sup> being parallel [to] with the axis of the nozzle body,

wherein said control system comprises,

[at least two] a plurality of mutually spaced separation triggering elements positioned on [at least one] an injection cross section of the divergent nozzle body [that is] perpendicular to the [nozzle] axis of the nozzle body, and

a means for simultaneously injecting fluid through the [at least two] mutually spaced separation triggering elements of said [at least one] injection cross section of the divergent nozzle body, forming a three-dimensional separation of said flow, [wherein said spacing of the separation triggering elements is sufficient for said injection through

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DR the at least two separation triggering elements to generate as many and for generating  
distinct zones of jet separation as there are corresponding to the spaced separation  
triggering elements from a respective plurality of mutually spaced initiation points  
positioned in the divergent nozzle body, [to form a three-dimensional separation of the  
flow] wherein said separation triggering elements are spaced so that said injection occurs  
through the separation triggering elements.

15. (Once amended) The rocket engine [nozzle] as claimed in claim 14, wherein the  
nozzle body is conical.

*ns*  
*and after*  
**Claims 16-18 are added as new claims.**